

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
Lewis K. Cirne et al.) Group Art Unit: 2454
Application No.: 10/635,669) Examiner: Wen Tai Lin
Filed: August 7, 2003) Confirmation No.: 8894
For: EVENT ROUTING MECHANISM IN)
A COMPUTER SYSTEM)

APPEAL BRIEF

Mail Stop Appeal Brief - Patents

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Appeal is from the decision of the Examiner in the Final Office Action mailed June 16, 2010, and Appellant's Notice of Appeal filed September 16, 2010, setting a period for response that extends through January 18, 2010 (January 16th being a Sunday and January 17th being a Federal Holiday), by a Petition for Extension of Time (two month) filed herewith.

Please charge the \$540.00 fee for filing this Appeal Brief to credit card. The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

1. Real Party in Interest

The present application is assigned to Apple Inc. Apple Inc. is the real party in interest, and is the assignee of Application No. 10/635,669.

2. Related Appeals and Interferences

None.

3. Status of Claims

Claims 1-59 were originally filed in this application. The present status of the claims is as follows:

- claims 12, 24, 28, 32, 39, 42, 44, 49, 54, 57 and 59 have been canceled;
- claims 1, 13, 25, 29, 33, 36, 40, 41, 43, 45, 50, 55 and 58 have been amended;
- claims 60 to 65 have been added;
- claims 1-11, 13-23, 25-27, 29-31, 33-38, 40, 41, 43, 45-48, 50-53, 55, 56, 58 and 60-65 are currently pending;
- claims 1-11, 13-23, 25-27, 29-31, 33-38, 40, 41, 43, 45-48, 50-53, 55, 56, 58, 60 and 61 are rejected under 35 U.S.C. § 101 for allegedly failing to recite patent-eligible subject matter; and
- claims 1-11, 29-31, 36-38, 40-41, 45-48, 55, 56, 58, 60 and 61 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 5,844,553 to *Hao et al.* (“*Hao*”);

Claims 1-11, 13-23, 25-27, 29-31, 33-38, 40, 41, 43, 45-48, 50-53, 55, 56, 58 and 60-65 are being appealed.

4. Status of Amendments

None

**5. Summary of Claimed Subject Matter Recited in
Claims 1, 13, 25, 29, 33, 36, 41, 43, 45, 50, 55 & 58**

Appellant's specification discloses routing an event to a human interface object in a computer system. A routing type is assigned to each event type that may be received. When an event is received and the routing type assigned to the event is determined. The event is then routed based on the routing type. In some embodiments, the routing types may be extensible such that they may be added or removed from a list of routing types. For instance, a type may be removed if no application has registered an interest in it.

The present application contains twelve (12) independent claims – 1, 13, 25, 29, 33, 36, 41, 43, 45, 50, 55 and 58. A mapping of each of the independent claims to one instance of an exemplary embodiment described in the disclosure is set forth in the following table:

Claim 1	
A method for routing an event to a human interface object in a computer system, said method comprising the following computer-implemented steps:	p. 3:34 to p. 4:1; FIG. 10
assigning a routing type to an event;	p. 6:22-27; p. 17:4-15
receiving an event specifying an assigned routing type;	p. 6:5-14; 11:5-16; 12:22-28; p. 13:14-6; 14:21; FIG. 4; FIG. 10:1010
determining a routing mechanism for the received event based on the specified routing type; and	p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 10:1020
routing the event to a human interface object based on the determined routing mechanism for the received event.	p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 10:1030
Claim 13	
An apparatus for routing an event to a human interface object in a computer system, said apparatus comprising:	p. 6:29 to 7:4; FIGs. 1 and 2.
an assignor (202) for assigning a routing type to an event;	p. 6:22-27; p. 17:4-15; FIG. 2:202

an event receiver (126) for receiving an event, said received event specifying the assigned routing type;	p. 6:5-14; 11:5-16; 12:22-28; p. 13:14-6; 14:21; FIGs. 1,2:126; FIG. 4; FIG. 10:1010
a routing type determiner (500) coupled to said event receiver (126) for determining a routing mechanism for the received event based on the assigned routing type; and	p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 5:500; FIG. 10:1020
a router (530) coupled to said routing type determiner (500) for routing the event to a human interface object based on the determined routing mechanism for the received event.	p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 5:500, 530; FIG. 10:1030
Claim 25	
A computer-readable medium having stored thereon instructions for causing a computer to perform the steps of:	p. 6:32 to p. 7:8; FIG. 1:112.124
receiving an event to which a routing type has been assigned;	p. 6:5-14; 11:5-16; 12:22-28; p. 13:14-6; 14:21; FIG. 4; FIG. 10:1010
determining a routing mechanism for the received event based on the assigned routing type of the received event; and	p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 10:1020
routing the event to a human interface object based on the determined routing mechanism for the received event.	p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 10:1030
Claim 29	
A method for routing an event to a human interface object in a computer system, each kind of event being assigned a routing type, said method comprising the following computer-implemented steps:	p. 3:34 to p. 4:1; FIG. 10
receiving an event to which a routing type has been assigned;	p. 6:5-14; 11:5-16; 12:22-28; p. 13:14-6; 14:21; FIG. 4; FIG. 10:1010
determining, based on the routing type of the received event, a routing mechanism corresponding to the kind of the received event; and	p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 10:1020
routing the event to a human interface object based on the determined routing mechanism.	p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 10:1030
Claim 33	
A computer-readable medium having stored thereon one or more routing data structures for specifying a routing type for each kind of event being handled, wherein the routing type specified for a particular event defines a mechanism for routing that event to a human interface object.	p. 6:32 to p. 7:8; FIG. 1:112.124; p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 10:1020 p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 10:1030
Claim 36	
A method for routing an event to a human interface object in a computer system wherein an event has an associated routing type, said method comprising the following computer-implemented steps:	p. 3:34 to p. 4:1; FIG. 10

receiving an event associated with a routing type;	p. 6:5-14; 11:5-16; 12:22-28; p. 13:14-6; 14:21; FIG. 4; FIG. 10:1010
determining, based on the routing type of the received event, a routing mechanism for the received event; and	p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 10:1020
routing the event to a human interface object based on the determined routing mechanism.	p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 10:1030
Claim 41	
A method for routing an event to a human interface object in a computer system, said method comprising the following computer-implemented steps:	p. 3:34 to p. 4:1; FIG. 10
assigning a routing type to an event;	p. 6:22-27; p. 17:4-15
receiving an event specifying the assigned routing type;	p. 6:5-14; 11:5-16; 12:22-28; p. 13:14-6; 14:21; FIG. 4; FIG. 10:1010
determining a routing mechanism for the received event based on the specified routing type;	p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 10:1020
routing events to a human interface object based on the determined routing mechanism for each respective event;	p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 10:1030
determining whether there are one or more clients currently registered as being interested in the received event; and	p. 4:1-3,17-21, 32-35; p. 12:1-6; p. 18:14-24, 30-35
if there are one or more clients currently registered as being interested in the received event, then sending the received event to each of the one or more clients that are currently registered as being interested in the received event.	p. 4:1-3,17-21, 32-35; p. 12:1-6; p. 18:14-24, 30-35
Claim 43	
An apparatus for routing an event to a human interface object in a computer system, said apparatus comprising:	p. 6:29 to 7:4; FIGs. 1 and 2.
an assignor (202) for assigning a routing type to an event;	p. 6:22-27; p. 17:4-15; FIG. 2:202
an event receiver (126) or receiving an event specifying an assigned routing type;	p. 6:5-14; 11:5-16; 12:22-28; p. 13:14-6; 14:21; FIGs. 1,2:126; FIG. 4; FIG. 10:1010
a routing type determiner (500) coupled to said event receiver for determining a routing mechanism for the received event based on the assigned routing type;	p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 5:500; FIG. 10:1020
a router (530) coupled to said routing type determiner for routing events to a human interface object based on the determined routing mechanism for each respective event; and	p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 5:500, 530; FIG. 10:1030

an indication count for each event, each indication count for indicating interest in the received event from one or more clients, wherein when a client registers or unregisters interest in the received event, the indication count for that event is updated.	p. 4:22-25; p. 12:34 to p. 13:2; 19:6-15
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Claim 45

A method for routing an event to a human interface object in a computer system, wherein the event is assigned a routing type, said method comprising the following computer-implemented steps of:	p. 3:34 to p. 4:1; FIG. 10
receiving an event specifying an assigned routing type;	p. 6:5-14; 11:5-16; 12:22-28; p. 13:14-6; 14:21; FIG. 4; FIG. 10:1010
determining routing process for the received event based on the assigned routing type;	p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 10:1020
identifying clients which have registered an interest in events of the determined routing type; and	p. 4:1-3,17-21, 32-35; p. 12:1-6; p. 18:14-24, 30-35
routing the event to a human interface object of the identified clients based on the determined routing mechanism.	p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 10:1030

Claim 50

An apparatus for routing an event to a human interface object in a computer system, wherein the event is assigned a routing type, said apparatus comprising:	p. 6:29 to 7:4; FIGs. 1 and 2.
an event type register for storing clients' interests in events of different routing types;	p. 4:1-3,17-21, 32-35; p. 12:1-6; p. 18:14-24, 30-35
an event receiver (126) for receiving an event specifying an assigned routing type;	p. 6:5-14; 11:5-16; 12:22-28; p. 13:14-6; 14:21; FIG. 4; FIG. 10:1010
a routing mechanism determiner (500) coupled to said event receiver for determining a routing mechanism for an event received by said event receiver based on a routing type assigned to the event;	p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 10:1020
an event manager for identifying clients which have registered an interest in the determined routing type; and	p. 4:1-3,17-21, 32-35; p. 12:1-6; p. 18:14-24, 30-35
a router (530) responsive to said event manager for routing received event to a human interface object of the identified clients based on the determined routing mechanism.	p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 10:1030

Claim 55

A method for routing an event to a human interface object in a computer system, said method comprising the following computer-implemented steps:	p. 3:34 to p. 4:1; FIG. 10
determining a routing mechanism for a received event that specifies a routing type, wherein the routing mechanism is determined based on the specified routing type; and	p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 10:1020
routing the received event to a human interface object based on the determined routing mechanism;	p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 10:1030

wherein said routing type is a member of a set including a first routing type that is based on geometric coordinates of an event and a second routing type that is routed based on an input focus.	p. 4:5-16; p. 13:18 to p. 14:6; p. 14:26 to p. 15:3; FIG. 11
Claim 58	
A method for routing an event to a human interface object, comprising the following computer-implemented steps of:	p. 3:34 to p. 4:1; FIG. 10
determining a routing mechanism for a received event that specifies a routing type, wherein the routing mechanism is determined based on the specified routing type; and	p. 6:5-14; p. 12:30-31; p. 14:21-24; FIG. 10:1020
routing the received event to a human interface object based on the determined routing mechanism for the event.	p. 4:6-7; p. 6:22-27; p. 14:24-25; FIG. 10:1030

6. Grounds of Rejection to be Reviewed on Appeal

- (1) Whether claims 1-11, 13-23, 25-27, 29-31, 33-38, 40, 41, 43, 45-48, 50-53, 55, 56, 58 and 60-65 recite patentable subject matter under § 101.
- (2) Whether claims 1-11, 13-23, 25-27, 29-31, 33-38, 40, 41, 43, 45-48, 50-53, 55, 56, 58 and 60-65 are patentable under 35 U.S.C. § 102(e) over *Hao*.

7. Argument

A. Rejection Under 35 U.S.C. § 101

Appellant traverses the rejection of claims 1-11, 29-31, 36-38, 40-41, 45-48, 55, 56, 58, 60 and 61 under § 101 for allegedly failing to recite patent-eligible subject matter. The rejection under 101 in the Final Office Action, dated June 2, 2010, is **repeated** from the Non-Final Office Action, dated March 2, 2010.¹ In both the Non-Final Office Action and the Final Office Action, the Office indicated that the claims would satisfy the requirements § 101 if the claims to were amended to recite, “... comprising the following computer-implemented steps.” (Non-Final Office Action, p. 3, ll. 9-11; Final Office Action, p. 3, ll. 9-11.)

¹ Despite Appellant's claim changes in the June 2010 Amendment, the rejection of the claims under § 101 in the June 16, 2010 Office Action is copied **word-for-word** from the March 2, 2010 Office Action. As such, it appears that this rejection was repeated by mistake.

In an Amendment dated June 2, 2010, filed in response to the Non-Final Office Action, **the Appellant amended claims 1, 29, 36, 41, 45 and 55 as suggested in the Office Action.** Thus, according to the Office, claims 1, 29, 36, 41, 45 and 55 recite patent-eligible subject matter under § 101.

The Final Office Action apparently rejected method claims 1, 29, 36, 41, 45 and 55 under § 101 for being directed to abstract ideas. (Final Office Action, p. 3, § 4.) Appellant respectfully disagrees. Under 35 U.S.C. § 101, processes are patent-eligible subject matter. “The Supreme Court has articulated only three exceptions to the Patent Act’s broad patent-eligibility principles: ‘laws of nature, physical phenomena, and abstract ideas.’” *Research Corp. Technologies v. Microsoft Corp.*, No. 2010-1037, slip op. at p. 13 (Fed. Cir. Dec. 8, 2010), citing *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980). The Court has never clearly defined what constitutes an abstract idea. *Id.* at p. 14. In light of the Supreme Court’s decision in *Bilski v. Kappos*, 130 S. Ct. 3218, 3225 (2010), the Federal Circuit has stated “[I]nventions with specific applications or improvements to technologies in the marketplace are not likely to be so abstract that they override the statutory language and framework of the Patent Act.” *Id.* at p. 15.

When claims 1, 29, 36, 41, 45 and 55 are taken as a whole, the claimed methods are physically manifested in computer systems that route events to human interface objects. (See, e.g., claim 1.) Hence, claims 1, 29, 36, 41, 45 and 55 recited specific applications of technology that cannot be considered abstract. The rejection of claims 1, 29, 36, 41, 45 and 55 under § 101 is, therefore, improper and Appellant respectfully requests that it be withdrawn. Claims 2-11, 30, 31, 37, 38, 40, 45-48, 56, 58, 60 and 61 also satisfy § 101 due to their corresponding dependence from claims 1, 29, 36, 41, 45 and 55.

B. Rejections Under 35 U.S.C. § 102(e)

The Examiner bears the burden of presenting a *prima facie* case of unpatentability. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). In order to establish that Appellant's claimed invention is anticipated under Section 102, the Examiner must show that each and every element of the claim in issue is found, either expressly described or under the principles of inherency, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); M.P.E.P. § 2131 (8th Ed., rev. 7, July 2008). Further, the identical invention must be shown in as complete detail as contained in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); M.P.E.P. § 2131.

1. Independent Claim 1

Hao cannot support a rejection of Appellant's claim 1 because the reference does not disclose or suggest, at least, "assigning a routing type to an event" and "receiving an event specifying an assigned routing type," as recited in claim 1. *Hao* discloses a method for sharing applications between computer workstations by multicasting input events to application windows. (*Hao*, col. 3, ll. 9-25.) An "Inter-Access Event Process" (IEP) distributes input events directly from an application window to other processes that concurrently interact. (*Id.* at col. 5, ll. 52-65.) Upon receiving a button press, a keyboard or a motion event, the IEP multicasts the event to all participating applications. (*Id.* at col. 8, ll. 4-26.) For example, when a user moves a pointer into a shared window and performs an action (e.g., motion, button press, key entering, or leaving, the window), the application sends an input event. The IEP captures the input event, processes it and then multicasts the event to **all shared windows**.

The Examiner apparently considers *Hao*'s events to correspond to the claimed "routing type." In particular, the Office Action states, "the routing types of FIG. 3B can be categorized as broadcast type (i.e., multicast events), focus types (keyboard events), and (geometrical type (button press/release and mouse click events)". (Final Office Action, p. 3, ¶ 6, emphasis added.) Appellant respectfully disagrees.

The Final Office Action has characterized *Hao*'s events as belonging to different "types" (which Appellant does not believe is correct). However, nothing in *Hao* can be considered to describe "**assigning a type**" to an event. Indeed, *Hao*'s 'Summary of the Invention' section states, "the mechanism **only processes user input events** (commands)." (*Hao*, col. 3, ll. 33-36, emphasis added.) Accordingly, there is no basis to interpret *Hao* to disclose "**assigning** a routing type to an event" or "specifying an **assigned** routing type," as recited in claim 1. (Emphasis added.)

On page 6 of the Final Office Action, the Examiner asserts, "It is noted that event packets/messages originating from different sources inherently contain certain codes that allow a subsequent process to distinguish one **type** of event from the others. Thus, the event-type-distinguishable codes are **inherently assigned** at the sources of the events." (bold emphasis added.)

First, Appellant traverses the Examiner's reliance on inherency. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) "In relying upon the theory of inherency, the examiner must

provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) The Office Action, however, provides no rationale or documentary evidence to support the Examiner's assertion that "the event-type-distinguishable codes are **inherently assigned at the sources** of the events." (Emphasis added.)

Second, contrary to the Examiner's assertion, nothing actually requires that types be assigned at sources. For instance, a predefined descriptor could be hard-coded into an event (e.g., a mouse click) without being "assigned a type" by a source. Accordingly, *Hao* cannot be considered to inherently disclose "**assigning** a routing type to an event" or "specifying an **assigned** routing type," as recited in claim 1. Furthermore, because *Hao* does not disclose "receiving an event **specifying an assigned routing type**" the reference also cannot disclose "determining a routing mechanism for the received event **based on the specified routing type**," as recited in claim 1, for at least this reason. (Emphasis added.)

Moreover, *Hao* does not disclose "determining a routing mechanism for the received event **based on the specified routing type**," for other reasons. According to *Hao*, **all** events occurring in windows of shared applications are multicast. (*Id.* at col. 8, ll. 4-6.) The determination to multicast a particular event is made by the IEP **based on the shared window** in which an event occurred. (*Id.* at col. 8, ll. 51-54.) Thus, the events in *Hao* cannot be considered to disclose the claimed "determining a routing mechanism ... based on the specified routing type," for this reason as well.

The Final Office Action also points to *Hao*'s disclosure of using shared window data arrays for allegedly determining how a multicast event is shared between applications. (Final Office Action, p. 4, ¶ 6.) The window data arrays merely determine which application

windows will receive an event from a shared window based on whether they have been selected by a user. (*Hao*, FIG. 3A; col. 7, ll. 36-44; col. 9, ll. 23-37.) The determination, however, is not “based on [a] specified routing type.”

Because *Hao* does not disclose the above-noted features of claim 1, *Hao* cannot support a rejection of claim 1 under § 102. For at least the same reasons, *Hao* fails to disclose the identical invention in as complete detail as contained in claim 1. Claim 1 is, therefore, allowable over *Hao*.

2. Independent Claims 13, 25, 29, 33, 36, 41, 43, 45, 50, 55 and 58

Independent claims 13, 25, 29, 33, 36, 41, 43, 45, 50, 55 and 58, although of different scope than claim 1, include distinguish features similar to the above-noted features of claim 1. Thus, *Hao* cannot support a rejection of claims 13, 25, 29, 33, 36, 41, 43, 45, 50, 55 and 58 for at least the same reasons given above for claim 1.

3. Dependent Claims 2-11, 14-23, 26, 27, 30, 31, 34, 35, 37, 38, 40, 46-48, 51-53, 56 and 60-65

Dependent claims 2-11, 14-23, 26, 27, 30, 31, 34, 35, 37, 38, 40, 46-48, 51-53, 56 and 60-65 are also allowable at least due to their corresponding dependence from claims 1, 13, 25, 29, 33, 36, 41, 43, 45, 50, 55 and 58.

8. Claims Appendix

See attached Claims Appendix for a copy of the claims involved in the appeal.

9. Evidence Appendix

None.

10. Related Proceedings Appendix

None.

Respectfully submitted,
BUCHANAN INGERSOLL & ROONEY PC

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VIII. CLAIMS APPENDIX

Claims involved in the appeal of U.S. Patent Application Serial No. 10/635,669:

1. (Previously Presented) A method for routing an event to a human interface object in a computer system, said method comprising the following computer-implemented steps: assigning a routing type to an event; receiving an event specifying an assigned routing type; determining a routing mechanism for the received event based on the specified routing type; and routing the event to a human interface object based on the determined routing mechanism for the received event.
2. (Original) A method as defined in claim 1 wherein said routing type is a member of a set including a first routing type that is routed based on geometric coordinates of an event and a second routing type that is routed based on an input focus.
3. (Original) A method as defined in claim 2 wherein the set further includes a third routing type that is broadcast to a plurality of interface objects.
4. (Original) A method as defined in claim 1 wherein the routing type is one of an extensible plurality of routing types, wherein routing types can be added to said plurality.
5. (Original) A method as defined in claim 4 wherein said routing types can be deleted from said plurality.

6. (Original) A method as defined in claim 1 wherein one or more clients can register interest in an event such that when the event is received, the event is sent to each client which registered interest.

7. (Original) A method as defined in claim 6 wherein a client can unregister interest in an event.

8. (Original) A method as defined in claim 6 wherein an indication as to interest is maintained for each event and is updated when a client registers and unregisters interest in the event.

9. (Original) A method as defined in claim 8 wherein the indication is a count which is incremented when a client registers interest in the event and is decremented when a client unregisters interest in the event.

10. (Original) A method as defined in claim 8 wherein said indication as to interest is maintained by adding an event to a handler table.

11. (Original) A method as defined in claim 10 wherein when the indication no longer indicates interest in an event, the event is removed from said handler table.

12. (Cancelled).

13. (Previously presented) An apparatus for routing an event to a human interface object in a computer system, said apparatus comprising:

an assignor for assigning a routing type to an event;
an event receiver for receiving an event, said received event specifying the assigned routing type;
a routing type determiner coupled to said event receiver for determining a routing mechanism for the received event based on the assigned routing type; and
a router coupled to said routing type determiner for routing the event to a human interface object based on the determined routing mechanism for the received event.

14. (Original) An apparatus as defined in claim 13 wherein said routing type is a member of a set including routing types of geometric and focus.

15. (Original) An apparatus as defined in claim 14 wherein the set further includes a third routing type that is broadcast to a plurality of interface objects.

16. (Original) An apparatus as defined in claim 13 wherein the routing type is one of an extensible plurality of routing types, wherein routing types can be added to said plurality.

17. (Original) An apparatus as defined in claim 16 wherein said routing types can be deleted from said plurality.

18. (Original) An apparatus as defined in claim 13 wherein a client can register interest in an event such that when the event is received, the event is sent to each client which registered interest.

19. (Original) An apparatus as defined in claim 18 wherein a client can unregister interest in an event.

20. (Original) An apparatus as defined in claim 18 wherein an indication as to interest is maintained for each event and is updated when a client registers and unregisters interest in the event.

21. (Original) An apparatus as defined in claim 20 wherein the indication is maintained in a counter containing a count which is incremented when a client registers interest in the event and is decremented when a client unregisters interest in the event.

22. (Original) An apparatus as defined in claim 21 wherein said indication as to interest is maintained by adding an event to a handler table.

23. (Original) An apparatus as defined in claim 22 wherein when the indication no longer indicates interest in an event, the event is removed from said handler table.

24. (Cancelled).

25. (Previously presented) A computer-readable medium having stored thereon instructions for causing a computer to perform the steps of:
receiving an event to which a routing type has been assigned;
determining a routing mechanism for the received event based on the assigned routing type of the received event; and

routing the event to a human interface object based on the determined routing mechanism for the received event.

26. (Original) A computer-readable medium as defined in claim 25 wherein said routing type is one of a set of a first routing type that is routed based on geometric coordinates of an event and a second routing type that is routed based on an input focus.

27. (Original) A computer-readable medium as defined in claim 26 wherein said set further includes a third routing type that is broadcast to a plurality of interface objects.

28. (Cancelled).

29. (Previously Presented) A method for routing an event to a human interface object in a computer system, each kind of event being assigned a routing type, said method comprising the following computer-implemented steps:

receiving an event to which a routing type has been assigned;
determining, based on the routing type of the received event, a routing mechanism corresponding to the kind of the received event; and
routing the event to a human interface object based on the determined routing mechanism.

30. (Original) A method as defined in claim 29 wherein said routing type is one of a set of a first routing type that is routed based on geometric coordinates of an event and a second routing type that is routed based on an input focus.

31. (Original) A method as defined in claim 30 wherein said set further includes a third routing type that is broadcast to a plurality of interface objects.

32. (Cancelled).

33. (Previously presented) A computer-readable medium having stored thereon one or more routing data structures for specifying a routing type for each kind of event being handled, wherein the routing type specified for a particular event defines a mechanism for routing that event to a human interface object.

34. (Original) A computer-readable medium as defined in claim 33 wherein said one or more routing data structures further includes a routing map which specifies code for each routing type, the code capable of routing events according to that particular routing type.

35. (Original) A computer-readable medium as defined in claim 33 wherein said one or more routing data structure specifies an interest indication for each event, the interest indication indicating whether applications are registered to receive that kind of event.

36. (Previously Presented) A method for routing an event to a human interface object in a computer system wherein an event has an associated routing type, said method comprising the following computer-implemented steps:
receiving an event associated with a routing type;
determining, based on the routing type of the received event, a routing mechanism for the received event; and
routing the event to a human interface object based on the determined routing mechanism.

37. (Original) A method as defined in claim 36 wherein said routing type is one of a set of a first routing type that is routed based on geometric coordinates of an event and a second routing type that is routed based on an input focus.

38. (Original) A method as defined in claim 37 wherein said set further includes a third routing type that is broadcast to a plurality of interface objects.

39. (Cancelled).

40. (Previously presented) A method as defined in claim 36 wherein said routing type is one of a set of routing types, said set of routing types including at least one of:
a first routing type, a second routing type, or a third routing type;
wherein said first routing type is routed based on geometric coordinates of an event;
wherein said second routing type is routed based on an input focus; and
wherein said third routing type is broadcast to a plurality of interface objects.

41. (Previously Presented) A method for routing an event to a human interface object in a computer system, said method comprising the following computer-implemented steps:
assigning a routing type to an event;
receiving an event specifying the assigned routing type;
determining a routing mechanism for the received event based on the specified routing type;
routing events to a human interface object based on the determined routing mechanism for each respective event;

determining whether there are one or more clients currently registered as being interested in the received event; and

if there are one or more clients currently registered as being interested in the received event, then sending the received event to each of the one or more clients that are currently registered as being interested in the received event.

42. (Cancelled).

43. (Previously presented) An apparatus for routing an event to a human interface object in a computer system, said apparatus comprising:

an assignor for assigning a routing type to an event;

an event receiver for receiving an event specifying an assigned routing type;

a routing type determiner coupled to said event receiver for determining a routing mechanism for the received event based on the assigned routing type;

a router coupled to said routing type determiner for routing events to a human interface object based on the determined routing mechanism for each respective event; and

an indication count for each event, each indication count for indicating interest in the received event from one or more clients, wherein when a client registers or unregisters interest in the received event, the indication count for that event is updated.

44. (Cancelled).

45. (Previously Presented) A method for routing an event to a human interface object in a computer system, wherein the event is assigned a routing type, said method comprising the following computer-implemented steps of:

receiving an event specifying an assigned routing type;
determining routing process for the received event based on the assigned routing type;
identifying clients which have registered an interest in events of the determined routing type;
and
routing the event to a human interface object of the identified clients based on the determined routing mechanism.

46. (Original) A method as defined in claim 45, wherein said routing type is a member of a set including a first routing type that is routed based on geometric coordinates of an event and a second routing type that is routed based on an input focus.

47. (Original) A method as defined in claim 46, wherein the set further includes a third routing type that is broadcast to a plurality of interface objects.

48. (Original) A method as defined in claim 45, further including the steps of maintaining an indication as to interest for an event, and updating said indication when a human interface object client registers and unregisters interest in the event.

49. (Cancelled).

50. (Previously presented) An apparatus for routing an event to a human interface object in a computer system, wherein the event is assigned a routing type, said apparatus comprising:

an event type register for storing clients' interests in events of different routing types;
an event receiver for receiving an event specifying an assigned routing type;

a routing mechanism determiner coupled to said event receiver for determining a routing mechanism for an event received by said event receiver based on a routing type assigned to the event;

an event manager for identifying clients which have registered an interest in the determined routing type; and

a router responsive to said event manager for routing received event to a human interface object of the identified clients based on the determined routing mechanism.

51. (Original) An apparatus as defined in claim 50, wherein said routing type is a member of a set including a first routing type that is routed based on geometric coordinates of an event and a second routing type that is routed based on an input focus.

52. (Original) An apparatus as defined in claim 50, wherein the set further includes a third routing type that is broadcast to a plurality of interface objects.

53. (Original) The apparatus as defined in claim 50, further including the steps of maintaining an indication as to interest for a routing type associated with received events, and updating said indication when a human interface object client registers and unregisters interest in a routing type.

54. (Cancelled).

55. (Previously Presented) A method for routing an event to a human interface object in a computer system, said method comprising the following computer-implemented steps:

determining a routing mechanism for a received event that specifies a routing type, wherein the routing mechanism is determined based on the specified routing type; and routing the received event to a human interface object based on the determined routing mechanism;

wherein said routing type is a member of a set including a first routing type that is based on geometric coordinates of an event and a second routing type that is routed based on an input focus.

56. (Original) The method of claim 55, wherein the set further includes a third routing type that is broadcast to a plurality of interface objects.

57. (Cancelled).

58. (Previously Presented) A method for routing an event to a human interface object, comprising the following computer-implemented steps of:
determining a routing mechanism for a received event that specifies a routing type, wherein the routing mechanism is determined based on the specified routing type; and routing the received event to a human interface object based on the determined routing mechanism for the event.

59. (Cancelled).

60. (Previously presented) The method of claim 1, wherein said human interface object comprises an element of a graphical user interface that is displayed on a display device.

61. (Previously presented) The method of claim 60, wherein said human interface object comprises one of a window, panel, editable text, push button, list box and radio button.

62. (Previously presented) The apparatus of claim 13, wherein said human interface object comprises an element of a graphical user interface that is displayed on a display device.

63. (Previously presented) The apparatus of claim 62, wherein said human interface object comprises one of a window, panel, editable text, push button, list box and radio button.

64. (Previously presented) The computer readable medium of claim 25, wherein said human interface object comprises an element of a graphical user interface that is displayed on a display device.

65. (Previously presented) The computer readable medium of claim 64, wherein said human interface object comprises one of a window, panel, editable text, push button, list box and radio button.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.